

# PLG

PLANNING AND  
LEARNING  
GROUP

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R E S E A R C H G R O U P S

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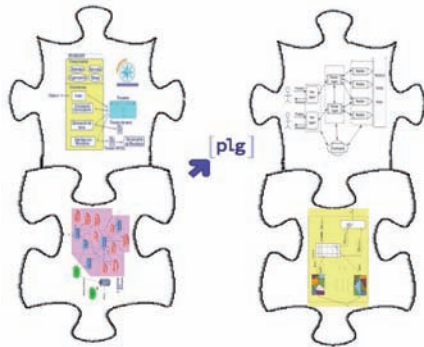




The Planning and Learning Group (PLG), led by Dr. Daniel Borrajo Millán, is formed by a consolidated team of 17 experts in developing effective and innovative software solutions for the automation of planning tasks and data analysis by means of advanced artificial intelligence technologies. PLG is one of the leading Spanish groups in automatic learning and task planning technologies.

• LINES OF RESEARCH •

- Artificial Intelligence
- Task planning
- Machine learning
- Problem solving
- Heuristic optimization
- Decision support systems



Modelling tools for processes management (workflow)

• OUTSTANDING COLLABORATIONS AND R&D&I PROJECTS •

The main partners and clients of the group include the European Space Agency (ESA), ACCIONA, GMV, ERICSSON, UNIÓN ELÉCTRICA FENOSA, SOFTWARE AG, or Goal Systems among other companies and organizations. PLG also maintains close collaborations with international advanced research groups of institutions such as the Carnegie Mellon University (USA), the Monterrey Bay Aquarium Research Institute (MBARI, USA) or the University of Alberta (Canada).

Some of the most relevant R&D&I projects of the group are:

- Planning, Execution and Learning Architecture.  
*Funding entity: Ministry of Science and Innovation. Dates: 2009-2011.*



Planning of Space Missions

- CCI. Complexity, Cost and Change Impact Based on Models.  
*Funding entity: European Space Agency (ESA). Dates: 2009-2010.*
- TIMI (Intelligent Intermodal Transport of Goods).  
*Funding entity: Ministry of Industry, Tourism and Trade. Dates: 2008-2010.*

- Math-Bridge: European Remedial Content for Mathematics.

*Funding entity: European Commission. Dates: 2009-2012.*

- Recommender systems and machine learning.

*Funding entity: Ericsson. Dates: 2008-2009.*

- Adaptation Based on Learning, Modelling, and Planning of User-oriented Complex Tasks.

*Funding entity: Ministry of Education and Science. Dates: 2005-2008.*

## • INNOVATIVE TECHNOLOGICAL SOLUTIONS •

- Software for planning long- and short-distance goods transport logistics

- Automatic optimization of the data analysis process (Data mining)

- Decision support business simulator which allows interacting with software agents

- Intelligent tool for the (semi-)automatic modeling of process management for organizations, as well as their knowledge-based optimization and simulation

- Project estimation tools based on artificial intelligence techniques

- Tools for semantic retrieval from documents (including web pages)

- Tool for establishing the sequencing of control instructions for industrial plants

- Artificial intelligence software targeted to companies interested in integrating these techniques into the products and solutions that they offer.



*Prediction and planning of control sequences in industrial processes*

• **SCIENTIFIC-TECHNICAL SERVICES** •

- Automation of dynamic planning and decision making processes.
- Optimization of processes from intelligent data analysis and trend or risk prediction.
- Design of intelligent data retrieval systems based on state-of-the-art technologies.
- Improvement of on-line services by means of using intelligent agents in the Internet.
- Application of artificial intelligence techniques for the solving business problems (business intelligence).
  - Techniques of this type have many applications.

- Analysis of the behavior of processes.
- Predictive control of industrial plants and processes.
- Optimization of logistic systems and networks.
- Automatic data analysis for predicting commercial, financial trends, etc.



*Planning of logistics processes*



*Building of automatic customization tools*

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